

#### § 161.013-5

(1) Emit a white light which meets the intensity requirements of § 161.013-5;

(2) Be capable of automatic signaling in a manner which meets the requirements of § 161.013-7;

(3) Contain an independent power source which meets the requirements of § 161.013-9;

(4) Float in fresh water with the lens surface at or above the surface of the water;

(5) Be equipped with a waterproof switch; and

(6) Meet the requirement of paragraphs (a) (1) through (4) of this section after floating for at least 72 hours followed by submersion in 5% by weight sodium chloride solution for at least 2 hours.

(b) The electric light may not be equipped with a switch mechanism which permits continuous display of a beam of light except that the light may be equipped with a switch which returns to the off position when pressure is released.

#### § 161.013-5 Intensity requirements.

(a) If an electric light emits light over an arc of the horizon of 360 degrees, the light must:

(1) When level, have a peak intensity within 0.1 degrees of the horizontal plane;

(2) Have a peak Equivalent Fixed Intensity of at least 75 cd; and,

(3) Have a minimum Equivalent Fixed Intensity within a vertical divergence of  $\pm 3$  degrees of at least 15 cd.

(b) If an electric light emits a directional beam of light, the light must:

(1) Have an Equivalent Fixed Intensity of no less than 25 cd within  $\pm 4$  degrees vertical and  $\pm 4$  degrees horizontal divergence centered about the peak intensity; and,

(2) Have a minimum peak Equivalent Fixed Intensity of 2,500 cd.

(c) The Equivalent Fixed Intensity (EFI) is the intensity of the light corrected for the length of the flash and is determined by the formula:

$$EFI = I \times (t_c - t_i) / 0.2 + (t_c - t_i)$$

Where:

I is the measured intensity of the fixed beam,

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$t_c$  is the contact closure time in seconds, (0.33 for this S-O-S signal), and

$t_i$  is the incandescence time of the lamp in seconds.

(d) An electric light which meets the requirements of either paragraph (a) or (b) of this section need not, if capable of operating in both manners, meet the requirements of the other paragraph.

#### § 161.013-7 Signal requirements.

(a) An electric light must have a flash characteristic of the International Morse Code for S-O-S and, under design conditions,

(1) Each short flash must have a duration of  $\frac{1}{3}$  second;

(2) Each long flash must have a duration of 1 second;

(3) The dark period between each short flash must have a duration of  $\frac{1}{3}$  second;

(4) The dark period between each long flash must have a duration of  $\frac{1}{3}$  second;

(5) The dark period between each letter must have a duration of 2 seconds;

(6) The dark period between each S-O-S signal must have a duration of 3 seconds.

(b) The flash characteristics described in paragraph (a) must be produced automatically when the signal is activated.

#### § 161.013-9 Independent power source.

(a) Each independent power source must be capable of powering the light so that it meets the requirements of § 161.013-3(a)(1) and emits a recognizable flash characteristic of the International Morse Code for S-O-S at a rate of between 3 and 5 times per minute after six hours of continuous display of the signal.

(b) If the independent power source is rechargeable, it must have a waterproof recharger designed for marine use.

(c) If the independent power source requires external water to form an electrolyte, it must operate in sea water and fresh water.

#### § 161.013-11 Prototype test.

(a) Each manufacturer must test a prototype light identical to the lights to be certified prior to the labeling required by § 161.013-13.